

We claim:

1. A test slide comprising:

a substrate;

a test pattern formed on said substrate, said pattern comprising at least a

5 diffraction grating and a scale system; and

a locating pattern formed on said substrate to assist an observer to locate said test pattern.

2. A test slide according to claim 1 wherein said test pattern includes first and second

10 diffraction gratings, said first diffraction grating oriented orthogonally to said second diffraction grating, and first and second scale systems, said first scale system having an orientation corresponding to the orientation of said first diffraction grating and said second scale system orientated orthogonally to said first scale system.

15 3. A test slide according to claim 2 wherein said calibration and test pattern further comprises header means to identify said calibration and test slide.

4. A test slide according to claim 3 wherein said means to identify includes a unique identification number for said slide.

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5. A test slide according to claim 3 wherein said calibration and test pattern further comprises an offset segment pie star.

25 6. A test slide according to claim 5 wherein said test pattern further comprises at least one series of geometric shapes, each series comprising a geometric shape repeated in said series at different sizes.

7. A test slide according to claim 5 wherein said test pattern further comprises at least one geometric shape repeated at at least two scales, each said shape including features to self-identify the scale of the shape.

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8. A test slide according to claim 7 wherein said geometric shape is an alternating pie shape.

9. A test slide according to claim 6 including at least first and second series of geometric shapes, said repeated geometric shape of said first series having different geometric properties

10 from the repeated geometric shape of said second series.

10. A test slide according to claim 2 wherein said substrate is a slide base.

11. A test slide according to claim 2 wherein said substrate is a cover slip.

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12. A test slide according to claim 11 wherein said test pattern and said locating pattern are formed on a first side of said cover slip, said cover slip being mounted to a slide base via adhesive means with said first side adjacent said slide base.

20 13. A test slide according to claim 12 wherein a suitable immersion fluid is maintained between said first side and said slide base.

14. A method of manufacturing a test slide, comprising the steps of:

25 (i) providing a substrate with an image area;

(ii) coating at least a portion of said image area with a resist compound;

(iii) exposing said resist compound to form a test pattern and a locating pattern

thereon;

(iv) developing said resist compound and removing portions of said resist compound from said substrate to form said test pattern and a locating pattern thereon.

5 15. The method of claim 14 wherein the exposure of step (iii) is accomplished by optical means.

16. The method of claim 14 wherein the exposure of step (iii) is accomplished by focused energy beam means.

10 17. The method of claim 14 wherein step (ii) further comprises the step of metallizing said portion of said image area prior to applying said resist and, in step (iv), said metallization is also removed from said substrate where said resist is removed.

15 18. The method of claim 17 further comprising step (v) wherein said resist is removed and said test pattern and said locating pattern is formed by metallization which remains on said substrate.

19. The method of claim 14 wherein step (iv) further comprises the step of removing a  
20 selected amount of said substrate where said resist has been removed.

20. The method of claim 19 wherein said selected amount of said substrate is removed by chemical etching.

25 21. The method of claim 19 further comprising the steps of:  
(v) metallizing said portion of said image area;

(vi) removing said metallization from the surface of said portion of said area such that metallization remains in depressions formed by said removal of said selected amount of substrate.

5 22. The method of claim 21 wherein step (vi) is performed by polishing said portion.

23. The method of claim 14 wherein said substrate is a slide base.

24. The method of claim 14 wherein said substrate is a cover slip.

10 25. The method of claim 24 wherein said cover slip is mounted on a slide base with said test pattern on a side of said cover slip adjacent said slide base.

15 26. The method of claim 25 wherein an immersion fluid is located between said side and said slide base.

27. A test slide comprising:

20 a substrate including an image area;

25 a test pattern formed on said substrate in said image area, said pattern comprising a known image having at least two or more features selected from the group comprising grating-type structures, scale systems, image series, offset segment pie stars and indicia to uniquely identify said slide.

28. A slide according to claim 27 wherein a first of said at least two features has an orientation which is substantially orthogonal to a second of said at least two features.

29. A slide according to claim 28 wherein said known image comprises first and second grating-type structures and first and second scale systems, said first grating-type structure and said first scale system having a first common orientation, said first common orientation being substantially orthogonal to a second orientation which is common to said second grating-type  
5 structure and said second scale system.

30. A slide according to claim 27 further comprising a locating pattern to assist in locating said test pattern on said slide.

10 31. A slide according to claim 27 wherein said substrate is a slide base.

32. A slide according to claim 27 wherein said substrate is a cover slip which is attached to a slide base.

15 33. A slide according to claim 27 wherein said known image is located substantially at the centre of said image area.

33. A slide according to claim 30 wherein said known image is located substantially at the centre of said image area and said locating pattern surrounds said known image.

20 34. A slide according to claim 27 wherein said known image is located at a periphery of said image area.

35. A slide according to claim 34 further including a locating pattern located between the  
25 centre of said image area and said known image.

36. A test slide comprising:  
a substrate;  
a test pattern formed on said substrate, said pattern having known shape and size; and  
a protective layer on said test pattern, said layer inhibiting inadvertent damage to said test  
5 pattern and being non-opaque to an preselected range of wavelengths for which said slide is  
intended to be used.

37. A test slide according to claim 36 wherein said test pattern includes features which are  
less than one micron in size.

10 38. A test slide according to claim 36 wherein said protective layer of formed via chemical  
vapour deposition techniques.

15 39. A method of forming a test slide for microscopes, comprising the steps of:  
(i) forming a master test pattern on an information carrier for an injection molding device,  
said test pattern including patterns of known size and shape;  
(ii) inserting said information carrier into said injection molding device;  
(iii) cycling said injection molding device to inject liquefied resin into contact with said  
information carrier and to cool said resin to form a plastic carrier with said test pattern formed in  
20 one surface; and  
(iv) removing said plastic carrier from said injection molding machine.

40. The method of claim 39 wherein said information carrier comprises at least two master  
test patterns and further comprising step (v) wherein said plastic carrier is cut to separate each of  
25 the test patterns thereon.

41. The method of claim 40 wherein said plastic carrier is cut to form conventional sized microscope slides with said test patterns being located at an image area thereon.

42. The method of claim 39 wherein said master test pattern comprises a collection of 5 reference images.

43. The method of claim 42 wherein said images of said reference collection have been originally obtained from visible light microscopy.

10 44. The method of claim 42 wherein said images of said reference collection have been originally obtained from scanning electron microscopy.

45. The method of claim 42 wherein said images of said reference collection comprise a montage of images.

15 46. The method of claim 42 wherein said master test pattern further comprises a grid and where said images are arranged in said grid.

47. The method of claim 39 further comprising step (v) applying a planar layer of thin film 20 material to at least a portion of said one surface.

48. The method of claim 47 wherein said layer is applied to said one surface in areas including image features comprising recesses in said surface such that optical interference in said layer produces colors discernable to a viewer.

25 49. A method of forming a test slide for microscopes, comprising the steps of:

- (i) forming a master test pattern on an information carrier for a mold, said test pattern including patterns of known size and shape;
- (ii) inserting said information carrier into a mold;
- (iii) adding a substrate material to said mold to contact said information carrier and

5 setting said substrate material to form a carrier with said test pattern formed in one surface; and

- (iv) removing said carrier from said mold.